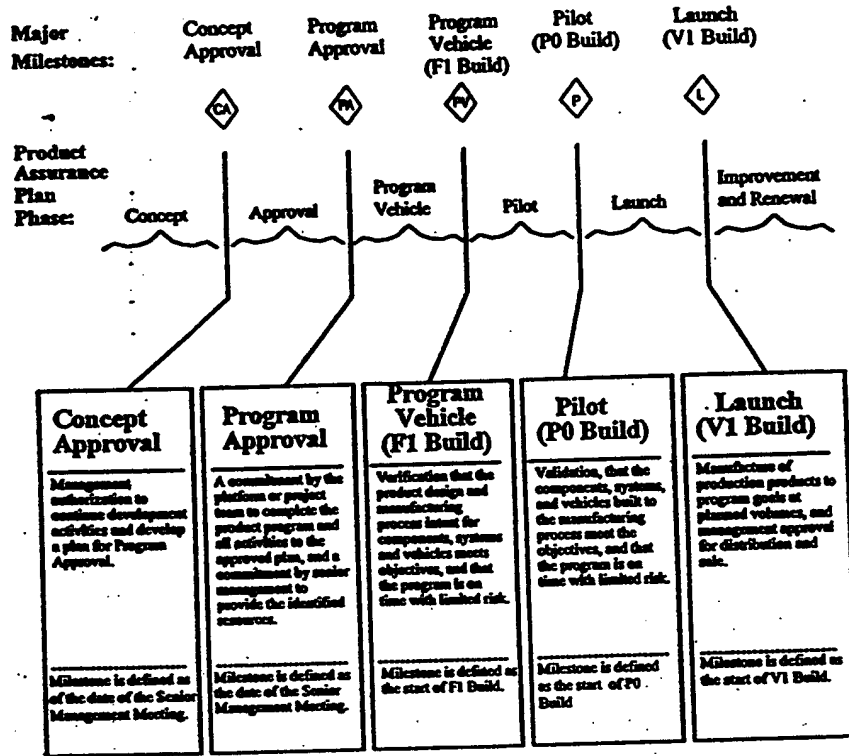


## INTRODUCTION

# Milestones



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**Concept Approval**

Concept Approval is an assessment of program scope, goals and resource requirements to assure they are consistent with the Corporate Long-Range Business Plan and overall Corporate strategy. Programs are defined broadly. Management provides authorization to continue product design and development activities based on theme proposals, interior and exterior models, and package/hardpoints. The Concept Approval milestone is the Senior Management Product Planning Committee (PPC) meeting that considers the new vehicle concept for approval.

**Program Approval**

Program Approval is a PPC review by Senior Management of the detailed objectives, goals, and activities required to complete the program. Based on a high confidence that the program can meet these within available resources and constraints, approval occurs. It is a commitment by the Corporation to provide the necessary identified resources to meet customer expectations and plan objectives. At Program Approval, the platform or project team agrees to execute the program described by this process, and execution begins. The Program Approval milestone is the PPC meeting date.

**Program Vehicles (PI)**

Program Vehicles are the verification that the product design and manufacturing process intent for components, systems, and vehicles, meet objectives and that the program is on time with limited risk. The Program Vehicle milestone is the date of the first Program Vehicle build. Program Vehicles are built to production design intent, to evaluate manufacturing and assembly production process intent. They provide production design intent vehicles for Engineering design verification. All open issues are documented in a problem tracking system common with pilot vehicles.

**P0 Pilot Vehicles**

P0 Pilot Vehicles are complete running vehicles with parts provided from hard tooling. They are built by Manufacturing to verify that the design is capable of being manufactured and assembled, while meeting all of the program's goals and constraints. The Pilot Vehicle milestone is the date of the first Pilot Vehicle build. Pilot Vehicles are used to confirm production design, validate parts, prove-out components and assembly processes (including at least two units built to plant scroll), and provide earlier identification and resolution of production function and fit issues prior to C1 pilot.

**System Tryout (STO) Vehicles**

System Tryout (STO) Vehicles are the framing of the first pilot body-in-white (BIW) of a new model built with parts approved off production tools. While this milestone is not linked to the end of a specific Product Assurance Planning phase, it occurs during the Launch Phase, and is tracked. The milestone is identified as the build of the first STO vehicle.

**C1 Pilot Vehicles**

C1 Pilot Vehicles are complete running vehicles built by Manufacturing at the assembly plants with parts produced at production rates to verify Corporate and supplier production tooling, equipment, and processes, and to confirm successful resolution of any production tooling product design changes incorporated since the P0 pilot. Again, this milestone is not linked to the end of a specific Product Assurance Planning phase, but occurs during the Launch Phase, and is tracked. The milestone is identified as the build of the first C1 Pilot vehicle.

**Pre-Volume Production (PVP) Vehicles**

Pre-Volume Production (PVP) Vehicles signal the start of pre-volume production body-in-white framing and assembly of complete saleable production vehicles. They will be built by Manufacturing in the designated assembly plant to verify the production process and plant readiness, and ensure that satisfactory progress has been made to meet all customer requirements and Corporate objectives. This milestone is not linked to the end of a specific Product Assurance Planning phase, but signals the beginning of volume production Launch. The milestone is defined as the build of the first PVP vehicle.

**Launch (V1)**

Launch is the start of volume production and assembly of vehicles. The Launch milestone is the date of framing of the first volume production vehicle. V1 must result in complete, quality vehicles that meet all customer requirements and Corporate objectives. All regulatory requirements and approvals will have been obtained. Part supplier and assembly plant facilities will be complete and ready for full volume production. Launch readiness reviews, consensus launch acceleration curve and objectives, and Management sign-off to begin Launch will be completed.

**Using the Product Assurance Plan**

The Product Assurance Plan is divided into five phases, which parallel the Product Development Process, and which are synchronized with the major timing milestones of this process. The five phases of the Product Assurance Plan are:

- Concept Phase
- Approval Phase
- Program Vehicle Phase
- Pilot Phase
- Launch Phase

Within each phase are four major elements, which make up the Product Assurance Plan. These are

- Deliverables
- Measurement
- Tasks
- Quality & Reliability Tools

Deliverables are defined as the outcomes which should be achieved within a specific phase. The Deliverables are important because they identify those objectives which must be achieved to successfully execute a program and meet customer expectations. *The Deliverables described in this Product Assurance Planning manual are only those deemed necessary to achieve quality and reliability objectives.* There may be other deliverables necessary to manage a vehicle program which are not discussed.

Measurements are used to assess the achievement of a Deliverable. They should be reviewed periodically throughout each phase and prior to each milestone, during a Status Review and Risk Assessment of the phase. Measurement is important because it brings in focus those Deliverables which are at risk to the program's success, and enable teams and Senior Management to intentionally make decisions to proceed or delay the launch of the product. *As with the Deliverables, only those measurements identified to assess execution of the Product Assurance Plan are discussed in this manual.*